

CLAIMS

1. A flame retardant composition which comprises a mixture of a phosphorus containing compound which decomposes to produce phosphoric acid when exposed to flame and an oxygenated thermoplastic heterocyclic resin which is prepared by reacting an urea of the general formula (I)



where X is oxygen or sulphur and R<sup>1</sup> and R<sup>2</sup> are hydrogen, identical or different alkyl of 1 to 18 carbon atoms, aryl of 6 to 9 carbon atoms or aralkyl of 7 to 9 carbon atoms or may be an alkyleneurea radical, where alkylene is of 1 to 9 carbon atoms, with at least 2 moles of a CH-acidic aldehyde of the formula (II)



where R<sup>3</sup> is hydrogen and R<sup>4</sup> is alkyl, aryl or aralkyl, or R<sup>3</sup> and R<sup>4</sup> are identical or different alkyl, aryl or aralkyl, in the presence of a strong acid, to give a condensation product, and thereafter treating the product with an alkali metal alcoholate in an anhydrous medium.

2. A flame retardant composition as claimed in claim 1 wherein the compound of general formula (I) is urea.
3. A flame retardant composition as claimed in claim 1 or claim 2 wherein R<sup>3</sup> and R<sup>4</sup> in the compound of general formula (II) is alkyl of 1 to 10 carbon atoms, aryl of 6 to 9 carbon atoms or aralkyl of 7 to 9 carbon atoms.

4. A flame retardant composition as claimed in any one of claims 1 to 3 wherein the compound of general formula (II) is isobutyroaldehyde.
5. A flame retardant composition as claimed in any one of the preceding claims wherein the phosphorus containing material is selected from ammonium polyphosphate, sodium polyphosphate, potassium polyphosphate, melamine polyphosphate or mixtures thereof.
6. A flame retardant composition as claimed in claim 5 wherein the phosphorus containing material is a mixture of ammonium polyphosphate and melamine phosphate.
7. A flame retardant composition as claimed in any one of the preceding claims which contains a blowing agent which produces a non-flammable gas when exposed to flame.
8. A flame retardant composition as claimed in claim 7 wherein the blowing agent is melamine or urea.
9. A flame retardant composition as claimed in any one of the preceding claims wherein the phosphorus containing material is encapsulated in the oxygenated heterocyclic thermoplastic resin.
10. A flame retardant composition as claimed in any one of claims 7 to 9 wherein the blowing agent also is encapsulated in the oxytenated heterocyclic thermoplastic resin.
11. A flame retardant composition as claimed in any one of the preceding claims which is prepared by extrusion
12. A flame retardant composition as claimed in any one of the preceding claims wherein the flame retardant composition comprises 25 to 60% by weight oxygenated heterocyclic thermoplastic resin; 0 to 75% by weight ammonium polyphosphate; 0 to 75% by weight melamine phosphate and 0 to 45% by

weight melamine with the proviso that ammonium polyphosphate or melamine phosphate essentially is present.

13. A composition of matter which contains a flame retardant composition as claimed in any one of claims 1 to 12.
14. A composition of matter as claimed in claim 13 wherein the flame retardant composition is present in the composition of matter in an amount of 5 to 90% by weight.
15. A composition of matter as claimed in claim 14 where the flame retardant composition is present in the composition of matter in an amount of 10 to 45% by weight.
16. A composition of matter as claimed in any one of claims 13 to 15 selected from thermoplastic polymers, thermosetting polymers, paper, reconstituted wood products and solvanted systems.
17. An composition of matter as claimed in claim 16 which is a polyolefin.
18. An composition of matter as claimed in claim 17 wherein the polyolefin is polypropylene.
20. An article formed from a composition of matter as claimed in any one of claims 13 to 18.
21. An article as claimed in claim 20 formed by injection moulding or compression moulding.
22. A method of improving the flame retardant capability of a composition of matter by embodying in the composition of matter a flame retardant composition as claimed in any one of claims 1 to 12.